

Low Noise Millimeter Wave LNA, Phase I

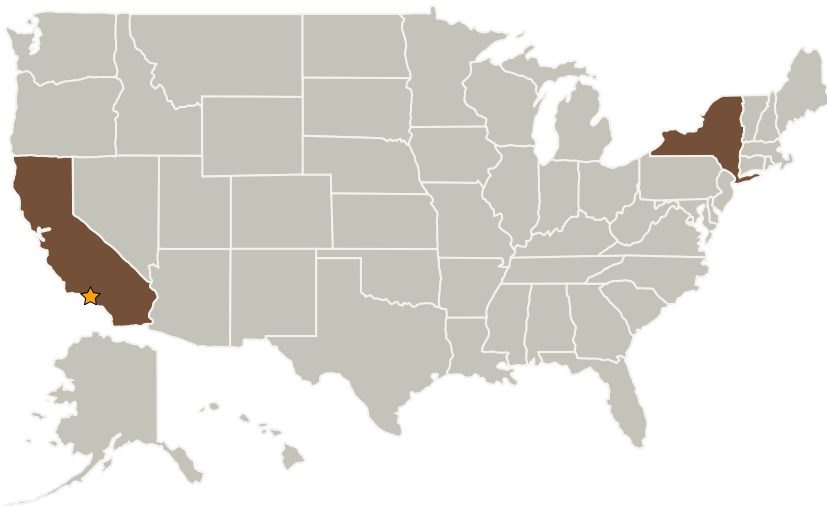
Completed Technology Project (2008 - 2008)



Project Introduction

The Phase I effort will result in a low noise MMIC G-Band amplifier that covers the entire 165 to 193GHz frequency range. The amplifier will be designed using a 50nm MHEMT that has already been developed by BAE Systems that enables the state-of-the-art performance to be achieved. The innovative amplifier design will have a gain of 20dB, a noise figure of less than 6dB (~4dB), an input output VSWR of less than 2:1. In addition, the MHEMT has the added advantage of having lower noise power stability and 1/f noise than InP devices. A balanced amplifier is the primary approach while a single ended unit will be investigated for missions that require reduced bandwidths. The MMIC amplifier will be designed to be inserted into a waveguide housing for additional and environmental testing in a Phase II program. At completion of the Phase II program, the amplifier will be capable of being space qualified for NASA missions.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Jet Propulsion Laboratory (JPL)	Lead Organization	NASA Center	Pasadena, California
JJW Consulting, Inc.	Supporting Organization	Industry	North Amityville, New York



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations

California

New York

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

James Whelehan

Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.2 Radio Frequency
 - └ TX05.2.7 Innovative RF Technologies